

# Reliability-Centred Maintenance

July 18, 19 to 20, 2012  
El Cielito Inn, Sta. Rosa,  
Laguna, Philippines



## This course will let you Think Differently on how you do maintenance

Almost every industry have some form of Preventive Maintenance where they scheduled their equipment for some replacement and overhauling activities on a time-dominated pattern. But despite the very best and noble efforts, a lot of unexpected problems, breakdowns and failures still occur on the equipment and every single hard knock maintenance knows & have experience about this. Worst, operators of the equipment complains about this. There is a technical explanation and we will expose the truth on this training.


Whilst, others think about maintenance as transitioning from Preventive to Predictive Maintenance, while others think that it is about transitioning from reactive to proactive maintenance. These people have been truly misinformed. No disrespect about this and I am not against Preventive Maintenance or Predictive Maintenance, what is important is to embrace the concept That in the real world of doing maintenance there are actually 6 patterns of failure. In most plants if a breakdown occurs, meeting will take place and action item will be to include another set of activities in your PM checklist.


In view of this, I would like to invite your people to this one time event course on "Reliability-Centred Maintenance" that will provide each and every maintenance an indebt understanding on what maintenance is all about, what it can do and what it cannot do so that we can grasp an understanding on how we can do the right maintenance on our assets. This course will make you think differently on how you perform your maintenance. If you are happy with the way you and your people do maintenance, then I am glad for you and you don't need this course, but if you ever wonder and have the slightest doubt that your current Preventive Maintenance strategy is not enough despite your very best and noble efforts, then you definitely need this course.

### Free to be given "ONLY" to the first 10 Early Birds for this Event !

- ✓ • Complete 80 pages lists of RSA Reliability Newsletter in Pdf
- ✓ • Original manuscript documents of Reliability-Centred Maintenance developed by Stanley Nowlan and Howard Heap, 495 pages

**ENROLL NOW**

 **049-837-07-64**

 [rollyangeles@rsareliability.com](mailto:rollyangeles@rsareliability.com)  
[marievic\\_angeles@rsareliability.com](mailto:marievic_angeles@rsareliability.com)

 [www.rsareliability.com](http://www.rsareliability.com)

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It all started from the Airline industry and industries are now adopting it . . .

## REACTIVE



## PREVENTIVE



## PREDICTIVE



## DETECTIVE



### RCM Training Package Includes:

- Morning / Afternoon meals and Lunch
- Complete Handouts on the RCM course
- Selected Articles on RCM
- Exercises and handouts on RCM
- Actual Case Study on RCM
- CD Copy of RCM Training
- Certificate of Attendance
- WCM Book

### Who Should Attend:

- All Maintenance Professionals
- Maintenance Managers
- Maintenance Supervisors
- Lubrication Engineers and Technicians
- Facilities Managers
- Preventive Maintenance Group
- Predictive Maintenance Groups
- Reliability Engineers and Managers
- Maintenance Planners
- Operations and Production Managers
- Management and Decision Makers
- Continuous Improvement Groups
- People in charge of their assets

### A Briefer About this RCM Course

- Almost every industry have some form of Preventive Maintenance where they scheduled their equipment for some replacement and overhauling activities on a time-dominated pattern. But despite the very best and noble efforts, a lot of unexpected problems, breakdowns and failures still occur on the equipment and every single hard knock maintenance know and have experience about this. Worst, operators of equipment complains, that Preventive Maintenance group had just made their equipment worst after performing their routing PM overhauling. There is a detailed and thorough technical explanation behind this.
- Whilst, others think about maintenance as transitioning from a Preventive to Predictive Maintenance, while some think it about transitioning from reactive to proactive maintenance. These people have been truly misinformed. No disrespect, but am not against Preventive Maintenance, but I'm against people who abuse the use of Preventive Maintenance and continuously add intrusive or force maintenance activities into the never ending list of PM activities to be done.
- In view of this, I would like to invite your key people on this one time event on "Reliability-Centred Maintenance" that will provide each and every maintenance an indebt understanding on what maintenance is all about, what it can do & what it cannot do so that we can grasp an understanding on how we can do maintenance on our plants. This course will make you think differently on how you perform your maintenance.

• Mr. Rolly is one of the World Class Best trainers I have come across during my 28 years career. The course was built up very methodically in the most simplest way. His presentation skills and his command on the various maintenance strategies made the workshop vey interesting. Mr. Rolly is one of the few maintenance professionals I have come across who is very much attached and dedicated to the maintenance profession. His wealth of experience and his humor made the RCM Workshop even more interesting. The structuring and delivery of the concept enables all the participants to initiate RCM studies very confidently. The training material provided by Mr. Rolly was excellent and was prepared with great care to ensure that all the participants are fully been benefited. I am sure that all the participants in this 3 days Workshop have been benefitted by his technical and intellectual sharing of his knowledge. Y. Srinagesh Dy, General Manager, Reliance Industries Ltd., India

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## RCM Course Objective:

- Provide a deeper understanding on what it takes for our maintenance to be most effective and efficient.
- Realize that maintenance tasks will be based from the consequences of the failure itself
- Know when to use the different maintenance tasks at hand with the aid of a Decision Diagram
- Learn the 6 failure patterns and how it affects us in our day to day maintenance activities
- Learn how to apply Reliability-Centred Maintenance in our daily activities

## RCM Course Overview:

- This course covers the principles of RCM which is a process used to determine the maintenance requirements of any physical asset in its present operating context. RCM is done by asking seven questions about our asset or system that is being maintained
- What are the functions and associated performance standards of the asset in its present operating context ?
- In what ways does it fail to fulfill its functions?
- What causes each functional failure ?
- What happens when each failure occurs ?
- In what ways does each failure matters ?
- What can be done to predict or prevent each failure ?
- What should be done if a suitable proactive tasks cannot be found ?
- RCM was discovered by Stanley Nowlan and Howard Heap from United Airlines industry and emerged from the most important piece of research ever done on an equipment. RCM explains the capabilities as well as the limitation of scheduled Preventive Maintenance. RCM is a process to determine what should be done in order to ensure that our physical assets continue to do whatever the user wants them to do in its present operating context.
- If you are happy with the way you and your people perform maintenance, then I am glad for you and you don't need this course, but if you ever wonder and have the slightest doubt that your current Preventive Maintenance strategy is not enough despite your very best and noble efforts, then you definitely need to attend this course.

## About the Resource Speaker

- **Rolly**, is a seasoned international reliability and maintenance consultant with 23 yrs of solid experience in the field. He had been invited in different countries and have conducted reliability and maintenance trainings in United Arab Emirates, India, KL Malaysia, Indonesia, Nigeria and Bangladesh. His portfolio of reliability and maintenance trainings include Maintenance Management courses on TPM, Lubrication, Tribology, Condition-Based Maintenance, RCM, RCFA, Planned Maintenance, World Class Maintenance Management, The 12 Disciplines, Maintenance KPI's and Indices, Oil Contamination Control, TPM Planned Maintenance and Autonomous Maintenance and much more.
- Rolly previously worked with Amkor Technology Phils., as a TPM Senior Engineer, an industry engaged in the manufacture of IC products and spearheaded their Planned Maintenance organization composed of maintenance managers and engineers. Rolly is currently working as an independent reliability and maintenance consultant. Rolly had released his first book on World-Class Maintenance Management - The 12 Disciplines
- **Rolly Angeles is one of the best trainers (World Class) I have ever met in my life. The delivery of the RCM course by him was so smooth and straight to the point. Besides he combined technicality with intellectualism thereby carrying with him even the most assume idle time along. The definition of the different tasks in RCM caught most of my attention. The RCM Information Worksheet simplifies the course to enable an ideal team to come up w/ the best maintenance strategies. Although it is a challenge to convince management team that is not trained on RCM to adopt, I will still insist that RCM is the best maintenance strategy world wide now. From Kalu-Kalu, Head of District Maintenance, Shell, Nigeria**



**RCM Master Class, Shell, Nigeria, Oct. 2007**

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## RCM 3 Day Program Details and Contents:

### DAY 1

- 0745 - 0815 - Coffee and Registration
- 0815 - 0825 - Welcome and Introduction by resource speaker
- 0830 - 1030 - **Module 1 : Changing The Maintenance Culture**
- **Module 2 :Introduction to RCM Course**
- Overview and origin of RCM
- 7 Basic Questions on RCM
- Traditional Concept about PM
- Limitation of Preventive Maintenance
- Evolvement of RCM in airline industries
- Six Failure Patterns
- Comparing RCM and TPM strength
- Benefits of RCM
- 1000 - 1015 - **Morning Break / Meals**
- 1030 - 1200 - **Module 3 : RCM Information Worksheet (FMEA)**
- Preparing Functions
- Functional Failures
- Failure Modes
- Failure Effects
- 1200 - 1300 - **Lunch**
- 1300 - 1500 - Continuation of Module 3
- Exercises
- FMEA Workshop
- 1500 - 1515 - **Afternoon Break / Meal**
- 1500 - 1700 - **Module 4 : Understanding Failure Consequences**
- Failure Consequence
- Hidden and Evident Failures
- Safety and Environmental Consequences
- Operational Consequences
- Non-operational Consequences
- 1700 - End of Day 1

### DAY 2

- 0745 - 0815 - Coffee
- 0815 - 1000 - **Continuation on Module 4**
- Failure Consequences Exercise
- Hidden and Evident Failure Exercise
- **Morning Break / Meals**
- 1000 - 1015 - **Module 5 : Different Maintenance Tasks Defined**
- 1015 - 1200 - No Scheduled Maintenance
- Preventive Maintenance Tasks
- On-Condition Tasks
- Failure Finding Tasks
- 1200 - 1300 - **Lunch**
- 1300 - 1500 - **Continuation on Module 5**
- 1500 - 1515 - **Afternoon Break / Meal**
- 1515- 1700 - **Module 6 : RCM Decision Worksheet**
- RCM Decision Worksheet Form
- Applying the Decision Diagram
- 1700 - End of Day 2
- DAY 3**
- 0815 - 1200 - RCM Workshop, prepare RCM Information and Decision Worksheet
- 1000 - 1015 - **Morning Break / Meals**
- 1015 - 1200 - Continuation of RCM Workshop
- 1200 - 1300 - **Lunch**
- 1300 - 1500 - Team Presentation on RCM
- 1500 - 1515 - **Afternoon Break / Meal**
- 1515 - 1700 - RCM Roadmap of Activities
- RCM Forms to be used for Analysis
- Applying the RCM Process
- Starting an RCM Analysis
- Tips on conducting RCM Analysis
- Take Pre and Post Quiz on RCM
- **Awarding of Certificates**
- **Summary and Closing**
- 1700 - End of Seminar

• The training was an eye opener to the entire team that the best efforts we were putting in till now covers only 20% of the problems. The strategically approach to maintenance is very well understood. The exercises in RCM was very useful. From BP. Brixley Carlson, Associate Manager, Sterlite Industries Ltd., India

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## Training Investment Costs:

Costs include WCM Book

- 1 Delegate: Php 24,000.00 + 12% VAT
- 2 Delegates: Php 46,000.00 + 12% VAT
- 3 Delegates: Php 65,000.00 + 12% VAT
- 4 Delegates: Php 84,000.00 + 12% VAT
- 5 Delegates: Php 102,500.00 + 12% VAT

This book is available only through RSA Reliability and Maintenance Consultancy Firm only.

## Payment Procedure and Policy:

- Payment can only be accepted through cash or check basis. For payments in check kindly Pay to RSA Reliability and Maintenance Consultancy Firm. Kindly complete the name of the firm on the check.
- An Official Receipt will be provided after issuance of complete payment for this event.
- Payment should be done during registration, kindly advise the delegates to carry with them the payment for this training. To avoid future problems on our part. No payment, No entry policy would be enforced on this seminar workshop.
- 2% Tax can be deducted from the total cost of training provided industry joining the training to provide BIR form 2307 together with the payment

## How To Register for this Event:

Step 1: Send us an email on the following:

- Full Name of Delegates: (FN, MI, LN)
- Position or Designation / Department
- Name of Industry
- Type of Industry
- How is payment to be made Cash or Check

Step 2: Once we have confirmed the names of those you will send, we will provide a confirmation email. Strictly No Walk-in Allowed in this training.

## Cancellation, Postponement Policy

- For delegates who will not complete the duration of the training, seminar and workshop, RSA Reliability and Maintenance Consultancy Firm will offer no refunds regarding this matter, certificates of attendance will only be provided to those delegates that will complete the three day seminar and workshop
- In the event that the seminar will be cancelled as a result of unforeseen events such as Acts of God or other uncontrolled reasons, RSA Reliability and Maintenance Consultancy Firm shall assume no liability whatsoever in the event this seminar and workshop be cancelled, postponed, move or rescheduled due to this fortuitous and unforeseen event.
- In case of a low turn out of delegates for this event, RSA Reliability and Maintenance Consultancy Firm reserves the right to cancel the event. An email will be sent to concerned parties regarding the cancellation.
- In the event you would like to cancel your participation in this seminar, kindly send us an email one week before the event is due. If you have made an advance payment and your delegates did not attend and have not informed us one week before the event, you will be charged with the full amount of the training fee.
- In case the delegate register for this event will not make it on this event, kindly notify us by email the changes in the name of the delegates.

## 100% Money Back Guarantee



- If for any reasons you were not happy or satisfied with the outcome of the training. Our small firm offers you **Unconditional 100% Payment Back** and you keep the WCM Book and all the materials provided during the training provided payment had been received during the registration period.

• RCM concept in understanding the steps of implementation. Importance of RCM concept for industries. Case studies and its very relevant to my industry. Seems to be a complete bible for the equipment system for its trouble free operations and achieving our organization goal. Maintenance people as a whole and organization will get benefited from the same. From Vinod Wagh, Associate General Manager / Sterlite Industries, Toticurin, India

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